pay without subjecting themselves to subsequent financial hardships and debt. It is possible, also, that one of the reasons why so many persons have today swung away from the medical profession is due in part not only to the larger amount of specialism that has become the vogue in modern medical care, and its increased expense, but also because, with these newer procedures, there has been lost, and many times, the human understanding, sympathy, and mutual esteem between physician and patient that were so prominent a feature in medical practice up to the last decade or so. Perhaps war conditions will aid in the reëstablishment of the much to be desired former physician-patient relationship.

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Progress in the Nursing Profession.—Medical progress of late years has not been altogether dependent on the medical profession, since its handmaiden, the nursing profession, has been of great aid. The transition from practical to registered nursing, with constant improvement in the education and training provided by accredited schools, has been notable. Therefore, it is not surprising that, in recent years, duty assignments of nurses in many hospitals were changed from twelve to eight-hour shifts. Particularly has this been the case in regard to special nurses.

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Government's War Needs in Nursing Service.—Comes now the war, with 32,000 graduate nurses already in service with the armed forces, and a quota of 32,000 additional nurses to be supplied during the coming year; that campaign being under the sponsorship of the American Red Cross. Nor is this all, for our Government has established the "United States Nurse Cadet Corps," and through the United States Public Health Service and associated groups, seeks to matriculate 62,000 high school graduates during the next twelve months, to receive training in accredited schools of nursing; the costs of tuition and maintenance of the student nurses to be paid by the Government.*

* * *

A San Francisco Hospital Problem.—On other pages of this issue are items telling of certain complications which have arisen in the administration of hospitals located in the San Francisco area. The Stanford Hospital, for example, found it necessary to outline a plan for a readjustment of special nursing. However, as submitted, the changes failed to secure the approval of organized nursing. A modified plan has since been submitted and is being tried out for a period of three months. Here again, medicine and its allied interests are faced with another problem in which the give-and-take elements must come into action if a happy solution is to be found. It is to be hoped that whatever is finally decided upon will work out to the best interests of all concerned, namely, to patients, hospitals, physicians, and nurses. Readers who are interested will find the various items referred to, on page 290.

* For other information, see CALIFORNIA AND WESTERN MEDICINE, September, pages 188-189.

ENTEROHEPATIC CIRCULATION OF ESTROGENS

An interesting contribution to the physiology of sex hormones is contained in proof of an enterohepatic circulation of estrogens recently reported by Cantarow [1] and his associates of Jefferson Medical College, Philadelphia.

Data previously reported by these clinicians [2] led to the belief that considerable quantities of exogenous estrogen are excreted in the bile. To confirm this belief, bile was obtained by duodenal intubation of menopausal women before and after intramuscular injection of 120,000 I. U. diethylstilbestrol. The initial samples were negative. During the first half-hour after injection, however, 440 I. U. were recovered from the bile, increasing to 8,200 I. U. during the fourth half-hour period, and then decreasing to 108 I. U. during the seventh half-hour period. The total biliary excretion during the first three and one-half hour period was 15,558 I. U., or 13 per cent of the intramuscularly injected dose.

In order to confirm the postulated excretion for endogenous estrogens, bile was obtained by the same technique from several women at full-term pregnancy, and three to seven days after delivery. An average of about 800 I. U. estrogen per 100 c.c. was demonstrated in full-term pregnancy bile, contrasted with 250 I. U. in the blood stream. The biliary excretion fell to 240 I. U. by the seventh postpartum day, at which time the blood assay showed only 9 I. U.

Similar tests were made on bile-fistula dogs. After intravenous injection of 4,000 units of chorionic gonadotropin or pregnant mare serum gonadotropin, bile was collected for four consecutive twenty-four-hour periods. These samples showed an average total biliary excretion of 600 I. U. by the end of the fourth day, or approximately 15 per cent of the intravenously injected dose.

In order to determine the subsequent history of this excreted estrogen, 300,000 I. U. (3 mg.) alpha-estradiol in 5 c.c. bile were introduced into an isolated canine jejunal loop. Some forty-five minutes later blood was allowed to flow for a half-hour period from the severed veins, draining this loop. Analysis showed 6,000 I. U. estrogen per 100 c.c. in this drainage blood.

From these and other data, Cantarow concludes that large amounts of both endogenous and exogenous estrogen are excreted in the bile in which it may be present in much higher concentrations than in the peripheral blood or urine. The rapid absorption of estrogen from the isolated intestinal loop points to a very efficient enterohepatic circulation of both exogenous and endogenous estrogen, which may prove to be of practical clinical interest.

W. H. MANWARING,
Stanford University.

REFERENCES

1. Cantarow, A., Rakoff, A. E., Paschkis, K. E., Hansen, L. P., and Walkling, A. A.: Proc. Soc. Exp. Biol. and Med., 52:256 (March), 1943.

2. Cantarow, A., Rakoff, A. E., Paschkis, K. E., and Hansen, L. P.: Proc. Soc. Exp. Biol. and Med., 49:707, 1942.